

Analysis of Faculty Reflections

Professional Development Day Activity

Student Led Hour of Coding for Faculty

Many positive comments and also concerns came from the faculty after participating in the coding experience provided to the faculty by our students on November 1, 2013.

The majority of positive comments surrounded how exciting these activities were for the faculty. Challenging, exciting, fun, engaging, and creative were all words used to describe these activities. Other positive responses fell into the categories of:

- Developing perseverance through trial and error and experimentation
- Developing problem solving skills
- Developing logical thinking skills
- Collaboration opportunities
- Student led teaching opportunities

The concerns that the faculty mentioned grouped into five categories:

- Knowledge - Faculty needing more knowledge on coding
- Application - How to integrate/apply coding skills into our curriculum
- Time - The amount of time needed to teach coding and learn coding
- Technology concerns – Concerns about hardware, troubleshooting and support
- Student Concerns - Concerns about student learning

On the following pages are the faculty comments compiled into the 5 categories of concern by division. Highlighted are the remarks pertaining to that category. Some comments are in more than one category. Not all comments are listed, many had no concerns, just positives from the activity!

Need More Knowledge

Upper School

I thought Jordan's suggestions about coding as syntax quite provocative, especially when applied to poetry. Obviously, before I were to do this, I'd need much more knowledge myself.

The need to build enough expertise in the particular application to be able to provide guidance to the novice users and the new skills I'll need to be an effective granny.

I am intimidated by the idea of needing to become enough of an expert in a whole new language (or set of languages) to effectively integrate it into my instruction in a way that does not detract from the lesson. I was hoping my next language would be German!

Well, right now, the almost complete bewilderment I have! Also, since our coding tutorials were specialized (I did AppleScript), I have no idea what some of the other coding languages are like--and how useful they'd be.

This was a very frustrating exercise--even copying down exactly what Elijah was doing gave me a series of "syntax errors," and so it's pretty safe to say I'm intimidated. While I appreciate the need for subtlety and nuance in programming (as in poetry), the persnickiness of coding is very off-putting for me. I suppose this makes me a luddite or a howler into the wind....

I think I would need to explore different programs to see what the best fit would be for my class.

I realize that I am the type of teacher who will need some hand-holding in this process. With the patience and support of a TRC, I will/would feel very intimidated about making good use of class time integrating my content with coding.

Dorene Fisher...I enjoyed the robot programming workshop, Lego Mindstorm, though it was quite by accident that I found myself in the class. The three young men--Peter, Milo, Parker--who facilitated the workshop were extremely patient and mindful that we were novices to this type of work. I did make the suggestion that the course they designed might be a bit complicated for people who are new to this world. Based upon the workshop and in response to the questions, I am excited by the possibility that even an old dog can do new tricks (with the help of young minds). I can also see possibilities for use in both the Theatre classroom, as well as the Humanities classroom. In the former, I can see a program that allows directors to move virtual actors around a stage, as part of a unit in directing. In the former, and relative to Jordan's brief presentation, I see programming as useful in not only poetry, but also in alternative assessments...allowing students to create a program such as a study guide for a particular novel for future classes, among other ideas about which I don't have time to write since the next session starts in 5 minutes. What terrifies me? Not being able to keep up with the abundant knowledge necessary to put into place a curriculum that includes coding.

Middle School

Not knowing much about it. I also want the students active in my class so taking away that activity time does not feel right.

I feel intimidated by everything I don't know and by not knowing where to begin.

The process was incredibly frustrating but entertaining and very rewarding at the same time. I am somewhat intimidated by the fact that the students know SO much more than I do in the area.

I am more excited than intimidated by the prospect of learning a language, as my previous training assures me that I can handle that task. I am concerned about not knowing enough math or science, however.

nts the ins and out of perspective (for one!), in a way that most of them would find instinctive. We (Andrew B. and I) were challenged, amused, and suddenly filled with collegial competition, and I can now well understand the single-mindedness with which my son plays minecraft! The session was too short. I want to learn more.

I feel like I have to be an expert before I introduce this to my students. Who has time to really learn this?

Lower School

It's intimidating because I've never been taught this type of thinking and I get frustrated easily. I wonder when I'll find the time to develop these skills myself.... though I wonder if maybe I can do a lot of learning along with my students

I'd like to know more about coding to know how to make it most meaningful to my students in the classroom. It is intimidating to me to find the "right place" to fit coding in with the curriculum. However, I do think it is important as it is something that would clearly be appealing to students and a wonderful way to stretch critical thinking skills.

I am intimidated because coding is such a huge concept. I did not even know about Scratch before attending this session, and the fact that there are so many apps and opportunities to learn about coding is slightly overwhelming. I'm just not sure where to go from here, and what specifically will be helpful for me to know when working with second graders.

I am concerned about my lack of coding knowledge. I enjoyed learning from the middle school students and I hope to learn more from my own fourth graders!

I think I would need time to work on a lot of the apps/programs before having the students try it. Maybe that's the Granny Effect, so maybe I just need to let go. But I don't think I would have them explore long division without having a pretty decent grasp of it myself.

This was so frustrating....my brain doesn't work this way yet. I am not giving up, but I think my learning curve will be very slow! It's great to be reminded how the children can feel when starting new projects: frustrated, excited, motivated, "hungry" for more, self-reflective, etc. .

I am intimidated by the amount of information that is out there. It just feels overwhelming to think about how much I should be learning to keep up with my students and own children.

I am interested in learning more about other coding programs. I can see how the Alice coding program might be a good opportunity for students to demonstrate their comprehension during RLA

I loved this experience - who knew that coding could be so much fun - The hour just flew by! In thinking about how coding could be integrated into my classroom, I am wondering if students could work together to create their own language. This would be a great way to teach students about how languages work! Integrating coding would involve letting go of some of the control of the classroom, and letting students take the lead. Although intimidating, isn't this how students could really learn through meaningful experience? Alice could be integrated seamlessly into the Spanish curriculum. Why not teach students about different Spanish-speaking countries and then recreate scenes from those places? Or instead of simply talking about various festivities celebrated around the world, having students create their own version of the holiday or celebration using Alice. Before using this in the classroom I would like to have more time to play around with the program. I am wondering if I would be able to help struggling students (or students with technological difficulties) with my limited knowledge of the program.

My own lack of understanding intimidates me. It feels foreign, which is a little bit intimidating. I don't yet see how to integrate this into what I teach but I'm open to ideas. The program/computer not working. Time. How do I teach my curriculum and teach coding?

I had so much fun trying to work out and problem solve as we worked through the Alice program. Using a poem as a prompt to design and code made one focus on key elements or images of the poem that could be represented. Working with a partner was also a great idea as we had to problem solve and collaborate. How exactly to go about it.

I am intimidated by the fact that I am not, shall I say, "fluent" much less acquainted with coding. I'd like to explore more of it on my own before I started teaching it in class. However, I could also see a benefit to learning with the kids

Coding is intimidating because there are so many unknowns. It is hard to anticipate what will be frustrating for students, and how to overcome these frustrations, since we have little experience with coding ourselves.

Application

Upper School

I still **don't have a clear vision of how I would integrate coding** into my class but today's exercise made me wonder if it's possible for students' language learning to improve by applying the same logic required to learn coding to learning a second language. There is no doubt that playing with Cargo-Bots this morning expanded my view of how coding is a thinking process.

I'm sure there are kids that could use coding in a Project or Alternative Assessment. **Can't see how I would ever get up in front of class and say, "Ok, students, let's code" however.** I'm happy to be a granny in this regard, if that's really what our roles are going to become.

The notion that students would have enhanced skills at logical thinking is exciting, though it will be interesting if it truly plays out that way. As far as actually enhancing the delivery of content, I think that **coding in the actual classroom would be a distraction** without evident payoff.

Using Alice opens the door for some visual projects in the classroom. It provides a different way for students to interact with the text and have them express their understanding in a more visual way. I can see the potential it bring as far as student engagement goes, and that is always a positive. **I would have to see a lot more for me to move away from other projects and activities I already do** in my class, but it was a great first experience.

I would be excited by the idea of students creating things that we could use in the classroom. I could see it being quite useful in Music Theory since composition/part-writing is such a logical process. For performance based classes I have more **trouble seeing how it could be implemented.** It might be useful in discussions of improvisation which is a creative but logical process.

It is **challenging to think about "solving a problem in history" by creating a code program** compared to the examples that we had in our group (which were about physics). But the idea of creating a quiz or a review activity seems difficult, but that is the best application I can think of for my class.

I can see how the process of coming up with codes can help students cognitively but it is hard for me too see right now how **to integrate the process of coming up with a code in Spanish class,** especially considering that the emphasis right now is not in grammar. I would love to try it though!

I can't, at this point, see **how I would implement Javascript into the early levels of foreign language** in a way that keeps students in the target language and builds their skill in *that* language. I am open to suggestion, however, and I could definitely see the use of it for projects, particularly at the higher level.

Not so much intimidating as confusing--it was hard from this intro. to get a **feel for the context, i.e., when or why you'd use it.** We had an introduction to how to do it, but not (for me) an understanding of its purpose or usefulness. Without that, it's **hard to see where it would fit** into my course.

I love the idea of using coding but the **amount of support necessary for both teachers and students to be able to effectively integrate it into instruction is daunting.** Time is one of our truly limited resources and I worry about what will have to be downsized as well as the lost instruction time in doing tech support and remediation for students. Moreover, technology driven classes always have to have lots of backups in order for a class to function in the event of the inevitable tech problem.

The pressure to find clear linkages between the work we are doing in our disciplines. Would it be used to reinforce what we are doing in the classroom, or would it exist in a separate space?

I have a lot left to learn “big picture”-wise. What we did in the session was informative and interesting, but if it takes an hour for me to learn how to make the computer tell me “hello,” (and my hand was held throughout the process), then I worry that getting kids to create some complicated program that can solve right triangles or graph a parabola would take ages. I’m also not sure the kids would buy into the idea of creating a program that already exists, and so much of what we would need or want in lower-level high school math is already out there. So, I guess I’m curious about what more I could do with it; I’m open to the idea of creating something new, but I don’t even know where to start in thinking about what that would look like.

This was incredibly fun and helpful. I am fascinated by the process and interested in learning more. It definitely gives me a better understanding of what our kids are doing. I am still very curious about how I can use this in the humanities classroom and would like to learn more

There are many resources already for accessing quiz questions and resources that are much easier to access than writing the code or creating a program. This idea is cool, but I do not know if the result is worth the effort for something that is already out there.

I really enjoyed learning about LegoMindstorms. The boys did a great job teaching us, and the activity was hugely entertaining. I can see how it would excite our students. I enjoyed the collaborative nature of our assignment, and I saw that it challenged us to communicate, experiment with trial and error, be patient, and persevere! So, from a 21st century “skills” perspective, this exercise was very valuable. I am curious how coding might fit into my course which focuses on social and emotional learning. This activity definitely incorporated social skills, patience, and perseverance, all skills I try to teach in my course. Thank you, Pam and Milo, Peter, and Parker!

Having enough computers and the support staff to keep things going. Feeling the need to zoom through other things in order to weave this in.

I am always looking for new and exciting ways to incorporate technology into my math classes, because I know I don't do enough STEM activities. I will need to brainstorm ways to bring coding into the math classroom. Ideas welcome!

Middle School

I thought this was fun! I’m unsure about how to integrate coding into my class as of yet, but I’ll keep thinking on it. I am excited to see where this goes.

I enjoyed it a lot. I was pleased it had not changed that much. However, I have a hard time seeing how I could make practical use of it in my class.

I cannot see a practical application - yet.

Coding for ad hoc reasons might make some sense, but I’m not sure what I would pitch to make room for substantial coding.

I don't know how much I will be able to incorporate coding into PE, but I enjoyed the coding activities and think they're a great way for students to critically think, work through problems, as well as manage frustrations and practice perseverance.

Lower School

I can see how coding is related to patterns and progression and variations in musical and dance forms. It's a little harder for me to see connections with drama except that in all of the performing arts there is a constant process of problem solving, re-figuring and reaching a satisfactory form.

I'd like to know more about coding to know how to make it most meaningful to my students in the classroom. It is intimidating to me to find the "right place" to fit coding in with the curriculum. However, I do think it is important as it is something that would clearly be appealing to students and a wonderful way to stretch critical thinking skills.

My concerns involve: a. Finding the time to fit it in. What do we eliminate from our currently packed curriculum. b. How to weave it in seamlessly to what we teach so that it is not an "airplane" drop, but a logical addition to what we are learning and not just a random add on.

I enjoyed this session. I really like doing apps like this. It challenges me. I'm not sure how I will integrate it into the classroom other than using apps like this one, cargobot.

I really enjoyed the opportunity to interpret a piece of writing and bring it to life through Alice. The process was challenging and frustrating at times because the program software was "too advanced" for the computer. There was a lot of trial and error and problem solving involved. I'm not sure how to integrate coding and technology into physical education at this time.

My own lack of understanding intimidates me. It feels foreign, which is a little bit intimidating. I don't yet see how to integrate this into what I teach but I'm open to ideas. The program/computer not working. Time. How do I teach my curriculum and teach coding?

I had so much fun trying to work out and problem solve as we worked through the Alice program. Using a poem as a prompt to design and code made one focus on key elements or images of the poem that could be represented. Working with a partner was also a great idea as we had to problem solve and collaborate. How exactly to go about it.

Elijah was an excellent presenter and teacher. I enjoyed playing around with Java Script. I am not sure how to integrate it into 3rd grade. I could possibly create an interactive history lesson using javascript on a webpage. I also wonder if I could use in rla for guiding students through novel reflections. As students finish a book, they could read and follow the script on a webpage that takes deeper into the book. As far as students themselves using JavaScript at the age of 8, I am not sure if they can handle the nuances of the coding. I can see that the cargobot and cargobot lit do lend themselves to helping kids to think sequentially so that as they mature they can easily learn languages like javascript.

I can understand how students are engaged with these programs. Our students did an excellent job presenting. I still have to think about the applications in subjects other than math. One student mentioned how he learned about the x and y coordinates and movement on a graph using Script. Lots of fun!

Time

Upper School

This 'scratch session' was fun and enjoyable. I think I could integrate what I learned today into my lower level French classes – it can certainly help students to create stories – the program has the ability to record or upload sound. The drawback is the time that we would have to spend creating the stories and coding but hopefully after a little while it would get easier.

Time in the classroom is at a premium. Coding conceived of as basic digital literacy and facility with digital tools is fine, but if conceived of as programming more specifically, it would take away from what we're actually trying to do in my class.

I love the idea of using coding but the amount of support necessary for both teachers and students to be able to effectively integrate it into instruction is daunting. Time is one of our truly limited resources and I worry about what will have to be downsized as well as the lost instruction time in doing tech support and remediation for students. Moreover, technology driven classes always have to have lots of backups in order for a class to function in the event of the inevitable tech problem.

I have a lot left to learn "big picture"-wise. What we did in the session was informative and interesting, but if it takes an hour for me to learn how to make the computer tell me "hello," (and my hand was held throughout the process), then I worry that getting kids to create some complicated program that can solve right triangles or graph a parabola would take ages. I'm also not sure the kids would buy into the idea of creating a program that already exists, and so much of what we would need or want in lower-level high school math is already out there. So, I guess I'm curious about what more I could do with it; I'm open to the idea of creating something new, but I don't even know where to start in thinking about what that would look like.

While definitely intimidating, I love the idea of students teaching other students and let them figure it out. Safe failure is something we need more of in the school and coding seems to provide that. Another aspect that worries me a little is the amount of time it might take students to compete a certain task. Of course, kids would probably figure it out a lot faster than us.

I can find ways to help students recognize and connect the thinking/puzzle solving process of coding to that of studying and purposeful practice on their instrument. The ideas and goals of coding are quite similar.... I would love to do this in my class but it is time consuming and that's what intimidates me the most. How to find ways to have students better understand content through coding.

Middle School

Finding the time to properly learn the process and language and coding, and investigate how to best incorporate them into the curriculum, while attempting to navigate other professional responsibilities.

The amount of time that could require to make a project using scratch. I guess that over time it gets easier and faster. And knowing that students always know more than me in this area, I guess it would not be that bad.

Not knowing much about it. I also want the students active in my class so taking away that activity time does not feel right.

If it takes so much time for me to do this, how long will it take me to guide students through this process--time consuming part of it!

Tom P. and Liz F. worked together. It doesn't take long to realize how time-consuming it would be to become proficient enough to make the kinds of pages that would suit our needs. But being able to customize Web pages would ultimately be quite a convenience.

I feel like I have to be an expert before I introduce this to my students. Who has time to really learn this?

There is so much material that I want/need to cover in a year that I'm worried about the time commitment.

Lower School

My concerns involve: a. Finding the time to fit it in. What do we eliminate from our currently packed curriculum. b. How to weave it in seamlessly to what we teach so that it is not an "airplane" drop, but a logical addition to what we are learning and not just a random add on.

I think the time component is the most intimidating. The coding hour felt very short, and I feel to allow the kids to fully explore and develop their coding ski, Is a large amount of time would need to be given over to teaching and using coding programs, and I don't know where this would happen given the busy curriculum and schedule that we already have

My own lack of understanding intimidates me. It feels foreign, which is a little bit intimidating. I don't yet see how to integrate this into what I teach but I'm open to ideas. The program/computer not working. Time. How do I teach my curriculum and teach coding?

Technology Worries

Upper School

I love the idea of using coding but the amount of support necessary for both teachers and students to be able to effectively integrate it into instruction is daunting. Time is one of our truly limited resources and I worry about what will have to be downsized as well as the lost instruction time in doing tech support and remediation for students. Moreover, technology driven classes always have to have lots of backups in order for a class to function in the event of the inevitable tech problem.

Having enough computers and the support staff to keep things going. Feeling the need to zoom through other things in order to weave this in

Middle School

I was in Alice. I was really excited after the video presentation because I thought it would be a good way for my students to show their understanding of a text or an historical event (like the French Revolution), but after using the program, I was frustrated that the computer we used would not respond to our commands. We were told the computer was too old, so only half of the commands worked only half of the time. I would have liked to see the coding part of it. Right now, I feel like I just learned how to use a new program, but not how to create something. I feel like I just did power point with a different program. It did give me ideas on other things to do in my class, but it does not include coding.

Student Concerns

Upper School

I have a lot left to learn “big picture”-wise. What we did in the session was informative and interesting, but if it takes an hour for me to learn how to make the computer tell me “hello,” (and my hand was held throughout the process), then I worry that getting kids to create some complicated program that can solve right triangles or graph a parabola would take ages. I’m also not sure the kids would buy into the idea of creating a program that already exists, and so much of what we would need or want in lower-level high school math is already out there. So, I guess I’m curious about what more I could do with it; I’m open to the idea of creating something new, but I don’t even know where to start in thinking about what that would look like.

I worry about the fact that what is possible is very student dependent. I would not be able to assume that every group of students would have the same set of skills or aptitudes. Especially in a small class this could be problematic.

While the session wasn't exactly relatable to my content area of teaching, it was good to be "confused student" that was presented with a task and then immediately expected to dive right in.

Coding seems to be a valuable tool to teach students to persevere. I am concerned that all students will NOT persevere and given the high level of frustration associated with coding, low achievement students might be quickly turned off. Rather than teaching perseverance, coding has the potential to reinforce low-achieving students already-poor academic self-images

Middle School

Knowing that students are so far advanced is a plus because they can teach you in the classroom, once you've set up the objective for the assignment. On the other hand, we are concerned that, though there will be experts in the room, there also **will be students who are as uneducated as we are**, especially in the lower grades. So **will there be enough support to make the process work so that all of the students benefit from the experience.**

I worry about the technical nature of the "first steps". I **worry that certain students would feel overwhelmed**, and I guess it would be critical to design lessons that gave students the opportunity to move forward at various paces. I think there are probably many analogies to the early stages of teaching music or teaching a language, and so I would want to learn about the strategies that music and language teachers use at "stage one".

It's not intimidating so much as overwhelming to contemplate the possibilities. The **skills gap between kids like the ones helping us today and many others in their age group is daunting.**

Lower School

I loved it. The students did a good job giving good instructions. The only thing that is **a bit scary about integrating is working with very young children who have not yet developed the trial and error perseverance skill.** Coding our robot was all about what didn't work this time and fixing it for the next time. There is **a lot of trial and error that might reduce small children to tears.**

I loved this experience - who knew that coding could be so much fun - The hour just flew by! In thinking about how coding could be integrated into my classroom, I am wondering if students could work together to create their own language. This would be a great way to teach students about how languages work! Integrating coding would involve letting go of some of the control of the classroom, and letting students take the lead. Although intimidating, isn't this how students could really learn through meaningful experience? Alice could be integrated seamlessly into the Spanish curriculum. Why not teach students about different Spanish-speaking countries and then recreate scenes from those places? Or instead of simply talking about various festivities celebrated around the world, having students create their own version of the holiday or celebration using Alice. Before using this in the classroom I would like to have more time to play around with the program. I am **wondering if I would be able to help struggling students (or students with technological difficulties) with my limited knowledge of the program.**